

Abstract Of The Disclosure

A method for reducing NO_x in a gas stream by sequentially exposing the gas stream to a first and a second catalyst. The first catalyst converts at least a portion of the gas stream to a reducing gas, it reduces at least a portion of the NO_x in a first temperature range, and
5 it absorbs at least a portion of the NO_x in the first temperature range. The second catalyst reduces at least a portion of the NO_x in a second temperature range utilizing the reducing gas produced by the second catalyst. The reducing gas produced by the first catalyst is typically a partially oxidized hydrocarbon, preferably an aldehyde, and more preferably acetaldehyde or formaldehyde. In addition to the first and second catalysts, the gas
10 stream may be exposed to a plasma. Preferably, the first catalyst is selected as a zeolite, and more preferably a zeolite impregnated with a cation. The cation is preferably selected from the group consisting of an alkaline cation, an alkaline earth cation, and combinations thereof and preferably exhibits pores sizes of greater than 4 angstroms, and more preferably exhibits pores sizes of greater than 7 angstroms. The second catalyst is
15 preferably a γ -alumina catalyst, and more preferably a γ -alumina catalyst impregnated with transition metals, including, but not limited to, Ag, In and Sn.